

CASIO fx 4000

Getting Started

If you aren't familiar with the calculator then turn it on and try a few simple calculations. Notice that it works differently than most other calculators, displaying everything you enter like an equation. There are left and right arrows that can move the cursor about and you can correct mistakes. The "E XE" key has the same function as an "=" key on most other calculators, and pressing it will evaluate the expression, provided it is valid mathematically.

Notice that most of the keys have more than one symbol associated with them. We'll need letters of the alphabet when we program, and they are accessed by entering the alpha mode. Pressing the alpha key lets you type one alpha character and then return to the normal mode. Notice that when the alpha key is pressed the display shows an "A" to indicate the alpha mode. If you want to type several alpha characters then it's fastest to use the alpha lock (shift alpha). To leave the alpha lock mode, press the alpha key. One useful capability when editing is inserting characters by means of the insert key; this allows you to insert a character at the current cursor location.

Programming

You must hit MODE 3, then shift and DEL to erase all programs. Then hit MODE + to be in comp mode.

To write or edit programs enter mode 2. You'll see a line of digits 0 to 9 that represent areas where programs can be written. Left and right arrows will move the cursor to the number you wish to select. Pressing "EXE" lets you start writing a program or edit what's already there. Once again, the left and right arrows give you mobility. To program the calculator enter the instructions exactly as shown below. Note that Lbl and Prg are single keys and are not spelled with individual letters. Fix and Deg are accessed by modes listed in the calculator face. Good Luck! ☺

In program 0:

Lbl 0:"RIM DIA":?→R:Prg 2:(R-G)÷2→B: √(A² + B² + C²) - H→Q

In program 1:

Lbl 1:"SPOKE":?→S:Prg 2:S+H→P: √(P² - A² - C²) x 2 +G→Z

In program 2:

Lbl 2:Fix 0:Deg:"FLANGE DIA":?→F:"CTR TO FLNG":?→C:"NO SPOKES":?→ M:"NO CROSS":?→N:720xN÷M→T:F x sin T ÷ 2 →A:F x cos T →F:1.5 →H

To exit write mode: MODE 1

The Casio fx4500P

The three colored buttons in the upper left corner change the other buttons to what is written near each button in that color. For example, to enter the exponent “²”, press the SHIFT and $\sqrt{ }$ keys; to enter an “=” sign, press the 2ndF and (-) keys. Pressing the key and any button shown in the first and third lines of the chart under the screen will result in entering whatever is printed below, or in the second or fourth lines. For example, to enter :Fix:, press MODE 7. The alphabet mode can be locked on by pressing SHIFT and ALPHA keys; press ALPHA again to exit alphabet.

Turn the unit on by pressing the AC button. Enter the program writing mode by pressing MODE and then EXP. You will see a very small WRT at the bottom of the screen. Leave the write mode by pressing MODE and EXP. Review functions by leaving the write mode and pressing FILE, then press the up and down arrows to move from line to line.

Programming the Wheelsmith SLS

Enter the write mode. You will see **Filename?** And **F1** on the screen. Enter the word SPOKE. Then press EXE. Move to line one by pressing the down arrow key. The screen will display F1 L1. Enter line 1 of function F1 press the FILE key to return to the start of F1 and press FILE again to move to another function. And so forth.

Function F1

```

SPOKE
L1  Fixø (MODE 7)
L2  R”RIM DIA”
L3  Prog L
L4  B=(R-G)/2
L5  Fix 1
L6  Q”SPOKE LNTH”=  $\sqrt{(A^2 + B^2 + C^2)} - H$ 

```

Function F2

```

RIM
L1  Fixø
L2  S”SPOKE USED”
L3  Prog L
L4  P=S+H
L5  Z”RIM DIA”=  $\sqrt{(P^2 - A^2 - C^2)} \times 2 + G$ 

```

Function F3

```

L
L1  Fix 1
L2  Deg (MODE 4)
L3  F”FLANGE DIA”
L4  C”CTR TO FLNG”
L5  Fixø
L6  M”NUM CROSS”
L7  Fix 1
L8  N”NUM CROSS”
L9  T=720xN/M
L10 A=F/2 x sin T
L11 G=F x cos T
L12 H=1.5

```

To test calculators:

Run program

Rimø = 548

Flangeø = 38

C to Flange = 35.5

spokes = 32

Cross = 3

Length = 268.2